Michael: Al, can you tell me what the problem was with the STS-80 airlock hatch failure?

Albert: Well, I think so, STS-80 was launched November 19, 1996 I think and, a part of this mission was to evaluate some tools for manufacturing, well for fabricating space station. And on one of these EVA's… in the airlock one of the astronauts, I think was Tammy Jernigan was the one… attempted to do and EVA and the hatch wouldn't open. The hatch just merely … consists of an actuator on a circular 44 inch diameter hatch, and it wouldn't open, it was bound up. Several attempts were made to open this hatch but of course it all failed. There was subsequently a loss of certain mission goals to test the feasibility of these tools that they were going to use on the space shuttle manufacturing.

Michael: So what specifically was the problem with the hatch?

Albert: Well, specifically after we returned after our successful landing, we did some evaluations and troubleshooting determined it was in the 18 latch side of the hatch. It was binding up in the actuator, and we removed the actuator, split the housing, and found out that a screw, a small number 10 screw had migrated from a location and bound up into the planetary gears.

Michael: So how do we go about fixing this sort of problem?

Albert: Well this sort of problem in of itself on orbit was un-fixable.

Michael: So for some of the future vehicles that are coming down the road what might be a recommendation?

Albert: Well a recommendation would be… you know keep the moving part simple for these types of applications, they're all applications, there's no way around it, they have to be elegant and they have to be complex, but to simply latch or to unlatch open and then close and latch a hatch doesn't… should not require a hundred plus moving parts.

Michael: So, a different design would be easier to be maintained?

Albert: Yeah, you know… if a lot of people are familiar with some of these old World War II movies where someone opens a hatch and it's just a four bar linkage or a four bolt linkage, you know, simple design, it locks it performs its function, holds the sea water out. In this case we're trying to hold the vacuum of space out of a pressurized vehicle and its applications are very very similar… in fact you know there is less pressure involved. So, to me a much simpler design is very feasible. Not to mention that making it a lot less difficult for engineers and technicians on the ground to rig this thing which I spent a lot of my career agonizing over these eighteen latch hatches.

Michael: Is there anything else about this situation that is important to discuss?

Albert: Well, in my view the same old adage… trying to keep it simple stupid, the old K.I.S.S. It's been around awhile, and never use a razor blade when a log splitter will do, and keep any

design you make if it's a critical piece of hardware or critical assembly make it maintainable so any crewmembers may have an out if they need it.

Michael: Alright, Thank you for providing this information.

Albert: You're welcome.